AMENDMENTS TO THE SPECIFICATION

Please amend the paragraph beginning at Page 1, Line 3 to read as follows:

The present invention concerns a diffractometer, in particular ~~a~~ an x-ray diffractometer. In more detail, it concerns a diffractometer performing non destructive tests on elementary components, which are not suited (or allowed) for being analysed by traditional diffractometers or even on components that cannot be displaced from their original location.

Please amend the paragraph beginning at Page 1, Line 9 to read as follows:

Diffraction techniques are widely used in the field of analysis of material structure. The obtainable information by this technique are important in several ~~field,~~ fields, such as chemistry, metallurgy and metallography, extractive industry, transportation, environment, aeronautics, aerospace, buildings and even conservation of cultural heritage.

Please amend the paragraph beginning at Page 1, Line 17 to read as follows:

Generally this kind of equipment ~~are~~ is used to detect diffraction from powders or polycrystalline solids. Analysis on polycrystalline solids are especially interesting when investigation is required for components of industrial implants and/or implant in exercise.

Please amend the paragraph beginning at Page 1, Line 21 to read as follows:

~~These~~ This equipment ~~require a x-ray~~ requires an x-ray source, a specimen stage and ~~a~~ x-ray detector. The specimen is requested to rotate, so that its surface is illuminated by the x-ray beam, coming from the source under different angles. The specimen ~~Specimen~~ and detector are requested to rotate simultaneously (optionally) at distinct rate so that their relative position allow the detector for receiving the diffraction beam to form the crystallographic planes which are in the right position for reflection.

Please amend the paragraph beginning at Page 1, Line 27 (and continuing to Page 2) to read as follows:

~~The x- ray~~ X-ray diffractometry is useful to obtain information in the field of chemical composition, physical and mechanical characteristics of specimens (presence of residual stress or compression) of metal manufactured or other material. It is useful even for precocious detection of defects or damages of crystalline structure, for example, in welded components or under load or fatigue. Generally, this stress causes preferred orientation of crystalline lattice that can be detected by ~~x-~~ray diffraction when particular procedures are adopted. This technique is useful even to analyse fibrous structures and glasses to determine the state of conservation and the chemical and physical characteristics.

Please amend the paragraph beginning at Page 2, Line 6 to read as follows:

It is sometimes useful to investigate by non destructive testing the lattice structure of components in implants on ~~e~~xercise. In this case, it is often difficult or impossible to obtain specimens for ~~in for~~ traditional analysis and laboratory tests. Often, it happens that the component or the implant under analysis can not be moved. For this reason, there is the necessity of a diffractometer, and in particular, ~~a~~ an x-ray diffractometer that can be easily used without moving any structure or component of the implant. ~~It's~~ It is important that this diffractometer ~~permits to obtain~~ enables obtaining a considerable range of information (i.e. equivalent to the laboratory diffractometers to analyse powders and polycrystalline materials). In particular, it is useful to recognise the presence of stress, preferential orientations, structural defects of the material that constitute the component analysed, avoiding that the particular working condition of the diffractometer will constitute a limit for the attainable information. It means that it is necessary to develop a diffractometer that is useful for being used in place and improve the performance of the traditional laboratory diffractometers.

Please amend the paragraph beginning at Page 3, Line 3 to read as follows:

According to a favourite embodiment of the invention, the diffractometer is ~~a~~ an x-ray diffractometer.

Please amend the paragraph beginning at Page 3, Line 20 to read as follows:

The plane perpendicular to said equatorial axis and containing the centre of the diffractometer, is fixed with respect to the analytical unit, and it's called the axial plane. This plane can constitute a symmetry plane for said analytical unit.

Please amend the paragraph beginning at Page 3, Line 23 to read as follows:

~~As~~ A "source collimation axis" is commonly defined as the axis of the radiation beam that the source can emit, and ~~as~~ a "reception axis", ~~the~~ is commonly defined as the axis of the radiation beam that can be detected by the detector.

Please amend the paragraph beginning at Page 4, Line 4 to read as follows:

According to an embodiment of the invention said analysed element is not mechanically connected to the diffractometer, with which, more preferably, it is not even in contact.

Please amend the paragraph beginning at Page 4, Line 8 to read as follows:

Figure 1 represents schematically the lateral view of ~~a~~ an x-ray diffractometer, according to the present invention

Please amend the paragraph beginning at Page 4, Line 20 to read as follows:

As an example ~~a~~ an x-ray diffractometer according to the present invention is described.

Please amend the paragraph beginning at Page 4, Line 22 to read as follows:

~~The~~ Figure 1 shows a lateral view of ~~a~~ an x-ray diffractometer, according to the present invention. The equipment includes a base (1), that can be equipped with two wheels or other means for transportation and positioning and can also contain an electric

generator capable of generating the energy required for the use, ~~)~~ a tank of cooling liquid for the x-ray source and the electric components for positioning the movable parts and collecting data from the measurement equipment and also to process these data.

Please amend the paragraph beginning at Page 4, Line 29 (and continuing to Page 5) to read as follows:

The equipment includes a support (3), an arm (4) supported by said support (3) and rotatable with respect to the arm, to permit ~~a~~ vertical positioning of the extremity (6) that includes the analytical unit, supported by the arm (4). Locking devices (5) permit ~~to fix~~ fixing the arm (4) ~~positioned~~ position with respect to the support (3). The extremity (6), also visible in ~~the~~ Fig. 2 and Fig. 3, includes ~~a~~ an x- ray source (7), ~~a~~ an x-ray detector (8) and other positioning devices. These devices include the element (9), called primary Euler cradle, which may advantageously be in the form of a circular arch, devoted to support the x-ray source (7) and the detector (8). In the described case, the primary Euler cradle is the analytical unit. Source (7) and detector (8) can be conveniently moved along the primary Euler cradle (9). For each position reached on the primary Euler cradle by source and detector, the source collimation axis (11) and the reception axis (10) are always directed towards a point (12), which is the centre of the diffractometer (12) and can advantageously coincide with the centre curvature of the primary Euler cradle (9).

Please amend the paragraph beginning at Page 5, Line 13 to read as follows:

The axes (10) and (11), can thus rotate around the centre (12) in a plane, the equatorial plane, that is substantially parallel to the primary Euler cradle (9). In ~~the~~ Fig. 3 the equatorial plane coincides with the plane of the drawing, the axial plane is perpendicular to ~~it~~ the equatorial plane, their intersection is the axis (13), called exploration axis.

Please amend the paragraph beginning at Page 5, Line 17 to read as follows:

According to a preferred embodiment of the invention, said primary Euler cradle (9) is conveniently supported by a ~~structure~~ supporting and movement structure (14), called secondary Euler cradle. A special system permits ~~to~~ the primary Euler cradle (9) to be moved with respect to the secondary Euler cradle (14) to execute a rotation around the equatorial axis (15). This equatorial axis (15) is contained in the equatorial plane and is perpendicular to the exploration axis (13). In this way, the whole equatorial plane can rotate of a certain angle with respect to the equatorial axis (15), and thus the collimation axis (10) and the reception axis (11) can rotate because the source (7) and the detector (8) are supported by the primary ~~the~~ Euler cradle (9).

Please amend the paragraph beginning at Page 6, Line 21 to read as follows:

The motor (33), ~~trough~~ through a screw mechanism, permits the translation of the ~~arm 4 long~~ arm (4) along its axis..

Please amend the paragraph beginning at Page 8, Line 10 to read as follows:

The dimension of the equipment can be chosen in relation to the application the instrument is built for and be such that all the devices are suitably ~~supported..~~ supported. In particular, as far as the primary Euler cradle is concerned, they must be sufficient to adequately support source and detector in relation to their dimensions and to permit a sufficient excursion along the primary Euler cradle itself. It's also important to keep in mind that, by increasing the size, the required power of the motors increases, to move the structures without the risk of vibration.

Please amend the paragraph beginning at Page 8, Line 17 to read as follows:

For example, it has been possible to implement an equipment as described with an external radius of the primary Euler cradle of about 22 cm, an excursion of source and detector, of the proportional ionisation kind, of about 135°, with a distance of about 11 cm between the centre of the diffractometer and the source and between the centre of

the diffractometer and detector. ~~Trough~~ Through analysis of reference specimen, results were obtained in ~~armony~~ harmony with those of traditional diffractometers.

Please amend the paragraph beginning at Page 10, Line 7 to read as follows:

When the specimen can be at least partly moved or orientable in the space the analysis opportunities are extended, so that a range of information that are comparable to those obtained from traditional laboratory instruments may be ~~obtained ,~~ such obtained, such as single crystal instruments which have the highest number of freedom degrees for orienting the specimen in the space.